REMARKS

The enclosed is responsive to the Examiner's Office Action mailed on

June 11, 200 At the time the Examiner mailed the Office Action claims 1-4, 6-8,

10-16, 18-22 and 24-34 were pending. By way of the present response the

Applicants have: 1) amended claims 1, 7, 10, 13, 19, 25 and 30; 2) added no new

claims; and 3) canceled no claims. As such, claims 1-4, 6-8, 10-16, 18-22 and 24-

34 are now pending. The Applicants respectfully request reconsideration of the

present application and the allowance of all claims now represented.

Claim Rejections

35 U.S.C. 103(a) Rejections

Claims 1-4, 6-8, 10-16, 18-22 and 24-34 are rejected under 35 U.S.C.

103(a) as being unpatentable over Cai, et al., et al., U.S. Patent No. 6,349,363

(hereinafter "Cai") and further in view of Gaither, et al., U.S. Patent No.

6,434,672 (hereinafter "Gaither")

Cai discloses a system including multiple program execution entities and

a cache memory having multiple sections. (Cai abstract) Additionally, Cai

discloses a technique where the cache controller selects one of the P-caches

based on a comparison of the EID provided by a request and the EID values

stored in the storage elements. (Cai column 5, lines 56-59)

Gaither discloses a system including a plurality of processors each having

dedicated cache memories, another level of cache shared by the plurality of

caches, and a main memory. (Gaither abstract)

The combination of Cai and Gaither does not describe what Applicants'
claims require. With respect to claims 1 and 13, the combination does not
describe:

> partitioning a cache array into one or more
> special-purpose entries and one or more general-
> purpose entries, wherein special-purpose entries
> are only allocated for one or more streams having
> a particular stream ID and the stream ID is stored
> outside the cache array, wherein the special-
> purpose entries to use a first cache replacement
> algorithm and the one or more general-purpose
> entries to use a second cache replacement
> algorithm, wherein the first and second cache
> replacement algorithms are different;
> determining if a cross-access scenario exists
> between at least one of the one or more special
> purpose entries and at least one of the one or
> more general purpose entries; and
> if the cross-access scenario exists,
> permitting cross-access of data between the at
> least one of the one or more special-purpose
> entries and the at least one of the one or more
> general-purpose entries that relate to the cross-
> access scenario.

First, Cai and Gaither, taken alone or in combination, do not describe "if
the cross-access scenario exists, permitting cross-access of data between the at
least one of the one or more special-purpose entries and the at least one of the
one or more general-purpose entries that relate to the cross-access scenario."
The Office Action states that Cai fails to disclose the above reference limitation
and points to two locations within Gaither as describing this limitation. These
two locations of Gaither discuss "snarfing." Snarfing occurs when a cache
controller watches address and data to update its own copy of a memory
location when something else modifies a location in main memory. Snarfing does
not describe permitting cross-access between caches or sections of a cache. The

Office Action is at least ignoring the fact that snarfing deals with a cache and

main memory, not cross-access between caches or sections of a cache.

Second, the claim requires that each cache have its own replacement

algorithm. Neither reference describes this in the cited sections.

Accordingly, the combination does not describe what Applicant's claims 1

and require. Claims 2-4 and 6 are dependent on claim 1 and are allowable for at

least the same reason. Claims 14-18 and 18 are dependent on claim 13 and are

allowable for at least the same reason.

With respect to claim 7, the combination does not describe:

> a cache memory array partitioned into one
> or more special-purpose entries and one or more
> general-purpose entries, wherein special-purpose
> entries are only allocated for one or more streams
> having a particular stream ID, wherein the stream
> ID is stored outside the cache array;
> control logic to determine if a cross-access
> scenario exists between at least one of the one or
> more special purpose entries and at least one of
> the one or more general purpose entries, wherein
> the control logic comprises:
> special-purpose control logic to store data
> from the one or more streams in the one or more
> special-purpose entries when the particular stream
> ID and the particular input address match a
> predetermined stream ID and a predetermined
> input address, the special-purpose control logic to
> implement a first cache replacement algorithm for
> the one or more special-purpose entries, and
> general-purpose control logic to store data
> from the one or more streams in the one or more
> general-purpose entries when the particular
> stream ID and the particular input address do not
> match the predetermined stream ID and the
> predetermined input address, the general-purpose
> control logic to implement a second cache
> replacement algorithm for the one or more

general-purpose entries, <u>wherein the first and second cache replacement algorithms are different</u>; and

if the cross-access scenario exists, the control logic to permit cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario.

First, Cai and Gaither, taken alone or in combination, do not describe "if the cross-access scenario exists, the control logic to permit cross-access of data between the at least one of the one or more special-purpose entries and the at least one of the one or more general-purpose entries that relate to the cross-access scenario." The Office Action states that Cai fails to disclose the above reference limitation and points to two locations within Gaither as describing this limitation. These two locations of Gaither discuss "snarfing." Snarfing occurs when a cache controller watches address and data to update its own copy of a memory location when something else modifies a location in main memory. Snarfing does not describe permitting cross-access between caches or sections of a cache. The Office Action is at least ignoring the fact that snarfing deals with a cache and main memory, not cross-access between caches or sections of a cache.

Second, the claim requires that each cache have its own replacement algorithm. Neither reference describes this in the cited sections.

Accordingly, the combination does not describe what Applicant's claim 7 requires. Claims 8 and 10-12 are dependent on claim 7 and are allowable for at least the same reason.

Claims 19, 25 and 30 (and their dependents) have similar limitations to 1, 7, and 13 are allowable for at least the same reasons.

CONCLUSION

Applicants respectfully submit that all rejections have been overcome and that all pending claims are in condition for allowance.

If there are any additional charges, please charge them to our Deposit Account Number 02-2666. If a telephone conference would facilitate the prosecution of this application, the Examiner is invited to contact Dave Nicholson at (408) 720-8300.

Respectfully submitted,

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